kmc transport planning

Keyhole Bridge, Poole

Transport Technical Report

March 2022

prepared on behalf of

Keyhole Bridge Group

Document:	Transport Technical Report
Project:	Keyhole Brigde, Poole
Client:	Keyhole Bridge Group
Job Number:	22013

Issue	Date	Status	Approved
1	23.03.22	01	JP
2	24.03.22	02	KM
3	31.03.22	03	JP

Contents

1 Introduction

Context

1.1 KMC is retained by Keyhole Bridge Group to provide a transport review to support the case for the permanent closure of the Keyhole Bridge in Poole to motorised vehicles. The location of Keyhole Bridge is illustrated in **Figure 1.1** below.

Figure 1.1 – Location of Keyhole Bridge, Poole

1.2 Keyhole Bridge in Poole was temporarily closed by Bournemouth, Christchurch and Poole Council (BCP Council) in August 2020 to promote active travel. BCP Council introduced an Experimental Traffic Regulation Order (ETRO) to prioritise walking and cycling on Whitecliff Road at Keyhole Bridge. In accordance with BPC Council's website this was "*to create a safer environment to travel to and through the area on foot or by bicycle*."

1.3 The decision to withdraw the ETRO was made in March 2021 and the bridge was reopened to motorised traffic based on the Council's assessment that the closure would create delays of circa 3 minutes at afternoon peak times on Parkstone Road, which would result in an economic cost of £220,000 per annum.

1.4 A ruling published by the High Court on 18 November 2021 found that in ending the consultation period earlier than had originally been indicated, the Council may have denied the opportunity for those who had not yet contributed to the consultation to do so. In line with that ruling, the Council is carrying out a further period of consultation from 28 February 2022 until 8 April 2022.

1.5 The Council is consulting on three options:

- Option A – leave Whitecliff Road open to all traffic through Keyhole Bridge;
- Option B – re-close Whitecliff Road at Keyhole Bridge to motor vehicles for a further trial period of 6 months using a new ETRO; or
- Option C – permanently close Whitecliff Road at Keyhole Bridge to motor vehicles.

Report Structure

1.6 Section 2 of this report includes a critique of how the closure of the bridge to motor vehicles aligns with national and local policy and the transport strategy of the Council.

1.7 Section 3 of this report summarises the safety considerations of the bridge in the context of recent changes to the Highway Code and the principle of a hierarchy of road users.

1.8 Section 4 of this report provides an Active Travel Economic Case (ATEC) which reviews the present value of benefits (PVBs), from an active travel perspective, that could have been derived from the closure of Keyhole Bridge to motorised vehicles over the Department for Transport's (DfT) standard 20 year appraisal period.

1.9 Although transport interventions can bring a range of benefits and disbenefits, this assessment focuses on the benefits and disbenefits to the users of active modes (e.g. walking and cycling). The appraisal outputs can then be compared to the disbenefits to motorised vehicle users presented by BCP Council in the Portfolio Holder's Final Decision notice, and the benefits and disbenefits presented in the report Data Evidence Whitecliff Road (January 2022).

1.10 Section 5 of this report provides a summary and conclusions.

2 Active Travel Policy Review

2.1 This section of the report reviews the closure of Keyhole Bridge against national and local policy. The economic evaluation of the scheme undertaken by BCP Council concentrates on the disbenefits of the scheme for motor vehicles. KMC considered the scheme assessment should also take into account the benefits for sustainable travel. The assessment undertaken by BCP Council does not take into account the policy context of the opportunities for mode shift to walking and cycling resulting from improving the environment through Keyhole Bridge by removing traffic. Support for active travel aligns with current policy at all levels, which seeks to prioritise active and sustainable travel over vehicular travel.

National Policy and Guidance

National Planning Policy Framework

2.2 The National Planning Policy Framework (NPPF) sets out the government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced. Whilst the closure of Keyhole Bridge to traffic does not form part of a development proposal, NPPF highlights the Government's focus on encouraging sustainable travel to support health, wellbeing and environmental objectives.

Gear Change: A bold vision for walking and cycling

2.3 Gear Change was published in 2020 by the DfT. It's a document that *"aims to kick off the most radical change to our cities since the arrival of mass motoring*". The Government announced in May 2020 £2billion of new funding for cycling and walking. The funding is intended to go towards improving cycle infrastructure, so anyone can ride safely; low-traffic neighbourhoods, to stop rat-running and make it easier to walk and cycle; bus and bike corridors on some main roads; and funding for a rise in e-bikes, all of which will open up cycling to more and different people and make places better for everyone.

2.4 The document goes on to state "*We want to see a future where half of all journeys in towns and cities are cycled or walked. 58% of car journeys in 2018 were under 5 miles. And in urban areas, more than 40% of journeys were under 2 miles in 2017–2018. For many people, these journeys are perfectly suited to cycling and walking*".

2.5 The document sets out the benefits of physically separating cyclists from traffic to give people the confidence to cycle and dramatically increase the numbers of people cycling. It states that "*if it is necessary to reallocate road space from parking or motoring to achieve this, it should be done*". The document refers to a number of case studies where cycling has substantially increased following cycle

improvements (e.g. 55% increase in cyclists on Blackfriars Bridge in the six months after a protected bike track was installed).

2.6 Gear Change advocates providing safe, low-traffic cycling by closing roads to through traffic, usually with simple point closures and comments that this may be useful where the road is too narrow for a separated cycle lane.

2.7 The Government announced the establishment of Active Travel England (ATE) as part of a new cycling and walking plan set out in Gear Change.

2.8 ATE is a new executive agency that builds on the Government's commitment to boost cycling and walking and deliver a healthy, safe and carbon-neutral transport system. ATE aims to ensure that investment in active travel delivers the priorities for a healthy, safe and carbon-neutral transport system and in doing so will help raise the standard of cycling and walking infrastructure. ATE will manage the national active travel budget. It will also inspect, and publish reports on highway authorities for their performance on active travel, and identify particularly dangerous failings in their highways for cyclists and pedestrians. In these regards, the commissioner and inspectorate will perform a similar role to Ofsted from the 1990s onwards in raising standards and challenging failure.

2.9 The ATE website (www.activetravel.org.uk) provides a wealth of information on the funding sources, evidence, research, information/guidance and case studies relating to local cycling and walking infrastructure plans for local authorities. Whilst this includes economic assessment, it also highlights the importance of considering:

1. Linking active travel and public transport to housing growth and planning

2. The role of active travel in improving health

2.10 The health benefits of active travel are relevant to the Keyhole Bridge scheme. These benefits are not accounted for in the Council's economic assessment. The Active Travel Toolbox written by Sustrans (https://www.sustrans.org.uk/about-us/) advocates that:-

"One of the major attractions of cycling and walking is the positive benefits for public health and wellbeing. Active travel is an important means of building physical activity into our daily routines, also improving air quality and mental health. The health toolkit includes:

- *How walking and cycling can improve health and wellbeing in the workforce.*
- *Improving air quality through active transport.*
- *The role of walking and cycling in improving mental health."*

2.11 The advantages of active travel on physical and mental health include economic benefits such as:

- Lower turnover rates and reduced absenteeism;
- Improved productivity and employee morale; and
- Lower health care costs.

2.12 Sustrans acknowledge that more needs to be done to improve links between transport, health and wellbeing nationally and locally, including how we account for mental health outcomes in transport planning.

Local Policy and Guidance

Local Transport Plan 3: Bournemouth, Poole and Dorset Strategy (2011 – 2026)

2.13 The Local Transport Plan 3 (LTP3) sets out a strategy to deliver transport infrastructure across Dorset (comprising the three authority areas of Bournemouth, Poole and Dorset).

2.14 Section 2 of the LTP3 covers managing and maintaining the existing network more efficiently. The relevant key points from the chapter are summarised below:

> *"Prioritising 'best use' which achieves a wide range of objectives - such as environmental, safety and accessibility - not just maximising capacity for motor vehicles."*

> *"Managing roads to balance different user needs and to reflect the local context and their wider function in place shaping."*

2.15 LTP3 states that the established road user hierarchy in LTP3 Figure 7.2 will continue to be applied where appropriate. **Figure 2.1** below reproduces the road user hierarchy set out in Figure 7.2 of LTP3.

Figure 2.1 – Road User Hierarchy (Fig 7.2 of LTP3)

2.16 Policy D-1 aims to re-allocate road space to give priority to buses, cyclists, and pedestrians to increase the efficiency of the highway network.

2.17 Section 8 of LTP3 covers active travel and "greener" travel choices. Relevant key points include:

> *"Promoting a long-lasting culture of cycling and walking, and public transport use, where the private car is no longer the "natural" choice where suitable alternatives exist."*

"Creating attractive, functional, "people-friendly" places which also encourage walking and cycling."

2.18 Paragraph 8.1.1 states *"a key focus of the LTP3 is to increase the modal share of walking and cycling by encouraging transfer from the many shorter distance journeys currently made by car."*

2.19 Policy E-1 plans to improve the pedestrian and cyclist environment by giving greater priority to these modes, whilst also making them safer by reducing volumes of traffic and providing attractive transport infrastructure to cyclists and pedestrians.

2.20 Paragraph 8.2.1 asserts "*Many people are discouraged from walking and cycling because of the danger (both real and perceived), pollution and intimidation caused by passing traffic, and because of breaks in the continuity of networks. The LTP3 aims, in the first instance, to create more extensive people-friendly environments which encourage people to walk and cycle regularly out of choice. This will be supported by road safety measures, reducing the dominance of motor vehicles, and re-allocating road space."*

2.21 **Figure 2.2** below is the summary included at the end of Chapter 8 of the LTP3 which outlines how active travel and "greener" travel choices will contribute to LTP3 goals.

Figure 2.2 – How Active Travel and Greener Travel Choices will contribute to LTP3 Goals (Figure 8.16 of the LTP3)

Supporting economic growth	- More active travel contributing to reduced economic costs of physical inactivity - A reduction in single occupancy car trips, particularly for shorter distance utility trips, with higher levels of walking and cycling contributing to reduced congestion, primarily in urban centres - Greater opportunities to provide attractive, car-free and shared spaces which increase footfall and support local businesses - Promotion of local "green fuel" technology business, supporting the Green Knowledge Economy
Tackling climate change	- Greater awareness and uptake of lower carbon travel choices for journeys to work and school - A long lasting cultural change towards more sustainable travel choices - Reduced carbon footprint of tourist related travel in the LTP area - "Greener fuel" vehicles accounting for a greater proportion of all vehicles in the LTP area
Better safety, security and health	- Increased modal share of walking and cycling resulting in higher levels of physical activity, lower levels of obesity and improved general health - Vibrant communities with greater people activity resulting in increased natural surveillance and, therefore, reduced crime and fear of crime
Equality of opportunity	- Better access to a range of services by the affordable options of walking and cycling - More accessible and widely available information for all to inform travel decision making
Improve Quality of Life	- People more able to explore and enjoy Dorset's outstanding natural environment by walking and cycling - Higher quality public realm creating pedestrian and cyclist friendly environments - Protection and enhancement of Dorset's attractive built and natural environments

2.22 The closure of Keyhole Bridge to motorised vehicles is wholly in accordance with the LTP3 which aims to prioritise walking and cycling, reducing the dominance of the car and re-allocating road space.

BCP Council Local Cycling & Walking Infrastructure Plan

2.23 The Local Cycle and Walking Infrastructure Plan (LCWIP) will be BCP Council's long-term strategic plan setting out the cycling and walking vision and the infrastructure that is required across the area in line with the Governments Gear Change plans. Public consultation on the LCWIP document took place between 1 November - 12 December 2021. The Council are currently reviewing the consultation feedback.

2.24 The document includes the target for 55% of primary school children to walk (or scoot/cycle) to school by 2025, and reaffirms the national policies to support walking and cycling to improve health and reduce congestion:

"Enabling residents to make short journeys by walking or cycling will reduce congestion and create health benefits for our residents. It will also help free up the roads for those who need or want to drive". (Councillor Mike Greene, Portfolio Holder Transport and Sustainability)

2.25 Section 7 of the document discusses the need to maintain quiet routes for walking and cycling:

"Many roads which previously had low traffic levels are now used as short-cuts to avoid congestion or traffic lights. As a result, these streets accommodate greater traffic volumes than originally designed for often travelling at inappropriate speeds. This extra traffic causes negative impacts such as delays on the main roads as drivers divert onto and off of them to/from residential streets, increased noise and air pollution, accidents, reduced interaction with neighbours, and an overall less pleasant living environment. Quiet routes for walking or cycling are therefore not as safe or as attractive as they could be."

Policy Summary

2.26 National and local policy share a clear aim in encouraging sustainable travel, particularly for short journeys, by prioritising walking and cycling over car travel. This includes supporting the reallocation of road space to sustainable modes to make active travel appealing and give more people the confidence to walk and cycle.

2.27 The health benefits of walking and cycling on both physical and mental health are well documented and a key driving force behind policies to maximise the use of these modes.

The re-opening of Keyhole Bridge to traffic is not in line with the Council's own policies to reduce the negative impacts of traffic on walking and cycling journeys. It does not accord with the long term vision to support a mode shift to sustainable modes which over time, will help tackle the wider issue of congestion.

3 Safety Considerations

3.1 The Portfolio Holder Decision Record (decision date not before 25 January 2021) highlights that one of the aims of Whitecliff Road scheme is specifically *"to create a safer environment to travel to and through the area on foot and/or by bicycle with safer and more sustainable access to the Poole park area. A further aim is to reduce the number of vehicles driving through Poole Park itself."*

3.2 Recent changes to the Highway Code introduced a hierarchy of road users to improve the safety of people walking, cycling and riding horses. A similar hierarchy is noted in Local Transport Plan 3: Bournemouth, Poole and Dorset (strategy 2011- 2026).

3.3 When considering safety it is important to recognise that the perception of safety is an important factor in increasing participation in active travel while perception of risk supresses active travel. In 2018 the Department for Transport commissioned and published Cycling and Walking Safety: a Rapid Evidence Assessment for the Department for Transport which states the following:

> *In the UK, recent high-profile incidents involving cyclists and pedestrians led to an urgent review of cycling safety and have focussed attention on the risk and perceived risk of cycling and walking (Department for Transport 2018). Maximising participation in walking and cycling necessitates that cyclists and pedestrians feel safe. Pedestrian and cyclist perceptions of safety will, in turn, be influenced by actual levels of safety. (pg7)*

3.4 The schedule of representation included in the Portfolio Holder Decision Post Engagement report includes numerous references to pedestrian and cyclist's safety concerns. For example:

> *'I have 3 young children and we regularly use the route. It brings great peace of mind knowing we are not going to be met by vehicular traffic coming the other way.'*
>
> *'I breathe a sigh of relief when I enter the 'closed to traffic roads' as I know at this point I am safe and do not have to battle with cars to get through keyhole bridge on my way to Whitecliff.'*
>
> *'…in the past it always scared me, especially when pushing a pushchair, as I'd have to push it into to road where the path narrows, into the path of potential oncoming traffic on a blind corner. It feels so much safer now.'*

3.5 Comments also make it clear that these safety concerns extend further than the bridge, for example:

> *'It has also stopped car speeding along the roads leading up to the bridge from both sides.'*
>
> *'The (Whitecliff) road has become safer without the traffic cutting through the park as this traffic is now non existent. The road can't cope with parking and with fast flowing two way traffic.'*

'Less dangerous to cross road, less dangerous for those parking to visit white cliff play park as less cars and they aren't speeding through a 'rat run'

3.6 The bridge is very narrow (2.7m wide) with no footway. (There is a narrow ledge 46 cm wide on one side however this falls far short of the minimum recommended width for a footway). As documented in the Council's Decision Record, there were three road casualties at or near to the bridge in the last 10 years. Two of these were at the bridge itself and in both cases, pedestrians were struck by vehicles negotiating the narrow passage under the bridge. As noted in the Decision Record, the approaches to the bridge, particularly from the Whitecliff side have poor visibility, which mean that pedestrians have to step into the highway not knowing whether or not a car is approaching from the opposite end (Parkside).

3.7 The Decision Record goes on to comment that there have been no formally recorded casualties reported to the Council during the trial itself and that officers have recently been alerted to concerns regarding "speeding cyclists" and near misses with pedestrians as a result of the closure to vehicular traffic. However Council observations did not identify any problems and it is acknowledged within the Decision Record that this can be addressed through introducing other physical measures to force cyclists to slow down.

3.8 The Council's Decision Record discusses the implication of removing the closure for vulnerable groups and states that *"there are some negative impacts on pedestrians, including the young, elderly and disabled who will find it more difficult to travel through keyhole bridge safely. However, making the route more attractive to cyclists may increase the frequency and speed of cyclists and the consequential risk of pedestrians individuals being struck by cyclists if the measure is not removed (this could addressed by adjusting the existing measur*e)." The Council's equalities assessment recognised the disbenefits as well as the benefits of the bridge closure but concluded that *"the decision (to reopen the bridge) may be regarded as negative overall."*

3.9 KMC considers that there are cost effective measures that could be implemented to minimise the potential for collision between pedestrians and cyclists. Conversely, if the bridge were to remain open to vehicular traffic, making improvements that would improve safety between pedestrians/cyclists and motor vehicles to acceptable standards is more difficult and costly within the constraints of the bridge.

4 Active Travel Economic Case

Introduction

4.1 This section of our report summarises the economic case for the closure of Keyhole Bridge to vehicular traffic.

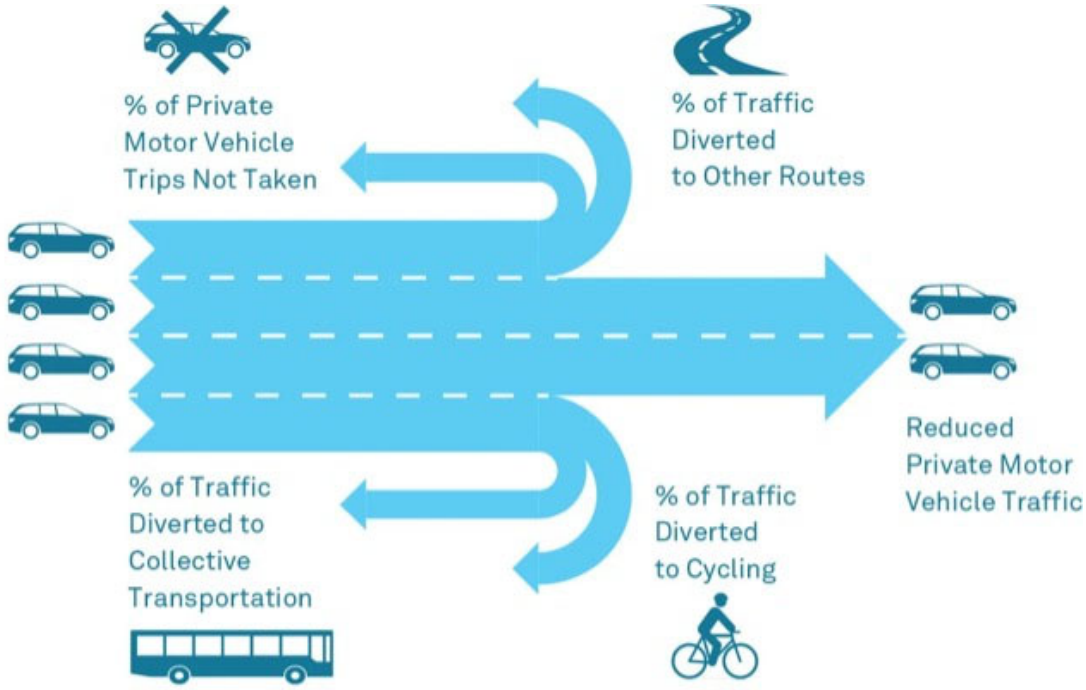
4.2 The economic case is split into three sub-sections. The first two sections review and challenge the economic disbenefits presented by BCP Council (also referred to as the Council), and the third reviews and challenges the Council's forecast active travel benefits.

Traffic Evaporation

Overview

4.3 Traffic evaporation describes the phenomenon of how traffic 'disappears' when road space is reallocated from private vehicles to more sustainable modes of transport such as walking, cycling and public transport. As summarised in **Figure 4.1** below, 'you get the traffic you build for'.

Figure 4.1: A Visual Illustration of the Traffic Evaporation Effect



Traffic Evaporation. Research shows that when road capacity is shifted to other modes, some peak-period traffic disappears from the network. Drivers shift to other modes, make trips at other times, or shift destinations.

Source: Global Street Design Guide

4.4 A study by Cairns et al (2002), building on their earlier seminal publication of the 'Evidence on the Effects of Road Capacity Reduction on Traffic Levels', showed that, after an initial 'settling in period', where road capacity was reduced for private cars the mean average traffic reduction was 21.9% and the median was 10.6%. Cairns et al (2002) identified the median percentage of 10.6% as a better reflection of central tendency.

4.5 Cairns et al (2002) explore the reasons for this reduction in traffic following road space reallocation, stating that the explanations are often more complex than had traditionally been assumed in traffic models. A number of reasons are cited, including:

- People switching mode of transport to active and public transport;
- People adjusting journey times to avoid peak times when travelling by car;
- People modifying their route; and,
- Increasingly, people choosing to work from home for all or part of the week (a possibility available to more people since the COVID-19 pandemic began) and, for other journey purposes, people simply not making the journey.

4.6 A significant research base demonstrates there is a direct correlation between road space reallocation and behaviour change, but, as Cairns et al (2002) acknowledged, this is not an overnight process. For example, the Cairns et al (2002) report showed that there was typically a short 'settling in period' after the reduction of road capacity for private cars. Here, traffic flows initially increased, before reducing as new patterns of behaviour became established.

4.7 Whilst the Cairns el al paper is from 2002 it is a seminal paper on transport planning that is still valid and used in current transport analysis. It brought together experience from 70 case studies on road space reallocation from general traffic, across 11 countries, with opinions from 200 transport professionals.

4.8 It is supported by a range of other important publications on so-called 'induced traffic'; the concept whereby new highway capacity generates traffic (and the converse whereby reducing capacity leads to traffic evaporation). This includes the Government's SACTRA report which acknowledged the phenomenon of induced traffic back in 1994.

Application

4.9 The Council's economic disbenefits calculation on Poole Park Road did not account for the traffic evaporation phenomenon. In light of this, KMC suggests that the Council's reported level of traffic disbenefits is likely to be an overestimation.

4.10 KMC has thus applied Cairns et al (2002) average mean (21.9%) and median (10.6%) traffic evaporation percentages to the Council's calculations under two different scenarios. These scenarios are set out below.

4.11 KMC also recognises that if the net number of vehicles using Parkstone Road was reduced due to traffic evaporation, this would also reduce journey delays.

4.12 Indeed, generally speaking, there is a strong relationship between traffic flow and delay. Simply put, the more traffic there is on a network, the greater the level of delay.

4.13 In uncongested conditions, and when a network is operating well within capacity, increasing levels of traffic flow tend to have a relatively minor effect on speeds and hence delays. However, as capacity is approached, speeds reduce more significantly and hence delays per vehicle increase.

4.14 The reverse is true when traffic flows are reduced. If traffic on a network reduces, then average speeds typically increase and delays per vehicle correspondingly decrease.

4.15 These impacts are typically assessed using a traffic model of a study area or longer-term observed journey times. We note that the Council's report Data Evidence Whitecliff Road (January 2022) includes a SATURN model but only uses the highway element of the model which is a fixed trip matrix and makes no allowance for traffic evaporation. Despite this the report shows that modelled journey times appear relatively unaffected by the closure of Keyhole Bridge. KMC does not have access to a forecasting model for Poole. However, as noted above, and evidenced by the Council's own SATURN model, the observed journey times used in the Council's assessment are not considered reflective of the longer-term impacts of the Keyhole Bridge closure.

4.16 In the absence of access to a traffic model, KMC has used the Department for Transport's (DfT) COBA manual (2021) to infer potential reductions in delay as a result of traffic evaporation. The COBA manual includes speed/flow curves which show the theoretical relationship between speed and flow for different categories of links. It is accepted that the application of link-based speed flow curves to network-wide traffic flow changes, such as those resulting from the closure of Keyhole Bridge, should be treated with caution. However, we have used the published curves to derive estimates of potential changes in delay that might result from the traffic evaporation effects described above.

4.17 **Table 4.1** below applies the speed/flow formula set out in the COBA manual for urban roads (Chapter 4, Part 5, Paragraph 4.5) as an appropriate proxy for the local network. We have estimated average speeds based on both the Council's observed flows on Parkstone Road on a weekday during the school term time (16:00-18:00), and those flows minus 10.6% (Cairns et al) to represent long term traffic evaporation impacts.

Table 4.1: Extractions from Figure 9/5 of the COBA Manual

Direction on Parkstone Road	Observed 2-hour flow (16:00-18:00 weekday)	Hourly flow in each direction (16:00-18:00 weekday)	Average speed at observed flow (from COBA)	Hourly flow (with traffic evaporation)	Average speed (from COBA)	Ratio of speeds
Outbound (Eastbound)	1,708	854	22.38kph	768.6	24.942kph	0.83
Inbound (Westbound)	2,150	1,075	15.75kph	967.5	18.975kph	0.90

Source: The flows were derived from the Portfolio Holder Decision Post Engagement Final Decision

4.18 **Table 4.2** below applies the speed ratio factors in **Table 4.1** to the per-vehicle delays estimated by the Council as a proxy estimation of how delays might reduce due to lower levels of traffic flow.

Table 4.2: Reduced Vehicle Delay with COBA Factors Applied assuming 10.6% (median) traffic evaporation

Direction on Parkstone Road	Pre-evaporation delay (secs)	Post-evaporation delay (secs)
Outbound (Eastbound)	202	168
Inbound (Westbound)	38	34

Source: Council observed delays when Poole Park closed (Portfolio Final Decision) and KMC application of DfT formulae

Traffic Evaporation Scenarios

4.19 Four scenarios have been developed that consider the impact of traffic evaporation on congestion and journey time delay:

- **Scenario 1a**: 10.6% (median evaporation) reduction in traffic flows applied to the number of vehicles travelling on Parkstone Road inbound and outbound from Poole between 16:00 and 18:00.
- **Scenario 1b**: 21.9% (mean evaporation) reduction in traffic flows applied to the number of vehicles travelling on Parkstone Road inbound and outbound from Poole between 16:00 and 18:00.
- **Scenario 2a**: 10.6% (median evaporation) reduction in traffic flows + COBA derived factors to estimate a reduction in the total additional journey delays per year (with median traffic evaporation).

- **Scenario 2b**: 21.9% (mean evaporation) reduction in traffic flows + COBA derived factors to estimate a reduction in the total additional journey delays per year (with median traffic evaporation).

4.20 **Table 4.3** demonstrates how, under the scenarios set out above, the Council's forecast level of disbenefit per annum would be reduced if the traffic evaporation phenomenon was applied to their calculations.

Table 4.3: Level of disbenefit in traffic evaporation scenarios

Scenario	Level of Disbenefit per annum
Council's Assessment	£219,666
Scenario 1a	£196,388
Scenario 1b	£171,564
Scenario 2a	£165,703
Scenario 2b	£144,758

4.21 KMC proposes to use Scenario 2a as a core scenario; Scenario 2a applies the median traffic evaporation effect of 10.6% and COBA derived factors to estimate a reduction in the total additional journey delays per year.

4.22 Under Scenario 2a the Council's forecast level of disbenefits would be reduced to **£165,703** per annum.

Vehicle Occupancy

4.23 The Council's current economic disbenefit calculations have been undertaken based on a car occupancy rate of 1.43 for 'general cars'. This number has been extracted from the TAG data book (see Table A.1.3.3) and is based on the occupancy rate for an 'average car journey' in the UK between the hours of 16:00 and 19:00.

4.24 Parkstone Road is, however, a key commuter corridor that serves major employment areas in Poole. As a result, Parkstone Road has a highly tidal profile of westbound (in the AM peak) and eastbound (in the PM peak) traffic flows. Furthermore, the traffic flows are based on delays that occur between 16:00 and 18:00. Therefore, it is considered more robust to base the car occupancy rate on the DfT's 'commuting car journey' occupancy rate of 1.14.

4.25 The Council calculated traffic disbenefits of **£2,365,000**, based on a vehicle occupancy rate of 1.0, discounted to 2010 prices, over a 20 year appraisal period.

4.26 Taking an average vehicle occupancy of 1.43 persons would increase the dis-benefit to **£3,382,000**, discounted to 2010 prices (paragraph 4.4 of the BCP Council Data Evidence Report, January 2022).

However, based on the evidence set out above, KMC considers that the average vehicle occupancy rate should be changed to 1.14 persons.

4.27 The application of the 1.14 vehicle occupancy ratio to the (1) Council's calculated congestion disbenefits and (2) KMC's recalculation of these disbenefits with the Scenario 2a traffic evaporation reductions, over a 20 year appraisal period, is set out below:

1. Council's calculated annual disbenefit with 1.14 vehicle occupancy: **£2,696,100** discounted to 2010 prices; and,

2. Scenario 2a traffic evaporation scenario with 1.14 vehicle occupancy: **£1,865,116** discounted to 2010 prices.

4.28 KMC proposes to treat Scenario 2a (with a 1.14 vehicle occupancy rate applied) as our core scenario in our Value for Money assessment.

4.29 It is also notes that the 2016 traffic survey was conducted in July/August which are peak times for traffic in the BCP area (see BCP Council's report Data Evidence Whitecliff Road (January 2022) Figure 2.5 – A350 Parkstone Road Weekly Traffic Profile 2016). The Council have assumed that July/August data can be expanded to estimate annual congestion 'disbenefits'; this approach may overstate the impact.

Walking and Cycling Benefits Review

4.30 The Council's existing Active Mode Appraisal Toolkit (AMAT) calculations are based on the closure of Keyhole Bridge leading to a 20% increase in cycle flows; however, the baseline flows are derived from a different "cycle infrastructure intervention in Weymouth". The Council's AMAT model inputs also assume a 12% increase in pedestrian flows based on national Living Streets data; however, the source of the pedestrian trips is not evidenced in their AMAT model.

4.31 The use of the Weymouth scheme AMAT outputs is not considered to be appropriate for the Keyhole Bridge scheme, especially when the Keyhole Bridge Community Group undertook walking and cycling counts both during the trial closure period (February 2021) and after Keyhole Bridge reopened to motorised vehicle traffic (September 2021).

4.32 Within the Council's AMAT spreadsheets a scheme cost of £100,000 has been inputted into the User Interface Cost tab and optimism bias has been set at 15%. The origin of this scheme cost is not confirmed and given the nature of the scheme, is likely to be an overestimation. Furthermore, the application of 15% optimism bias to this cost is also considered inappropriate, given the assessment is

retrospective and the cost of the scheme should thus be known. However, for consistency, KMC has retained this assumption in our calculations.

Our Approach

4.33 The trial closure of Keyhole Bridge was effective between 14th August 2020 and March 1st 2021.

4.34 The Keyhole Bridge Community Group undertook traffic counts whilst Keyhole Bridge was closed to motor vehicles on the 26th February 2021 between 15:30 and 18:00. The surveys took place towards the end of the trial period, by which time new active travel behaviours would have likely been established. Had the closure been in place for a longer period of time, it is quite possible that even greater use of active modes would have been observed as further behavioural adaptions took place.

4.35 Approximately five months after the reopening of Keyhole Bridge to motorised vehicle traffic, Keyhole Bridge Community Group undertook another traffic survey in September 2021.

4.36 Within our AMAT calculations KMC has used the September 2021 traffic surveys to inform the 'without scheme' traffic flow scenario, and the February 2021 surveys to inform the 'with scheme' scenario.

4.37 Both surveys were undertaken between 15:30 and 18:30. The total number of pedestrian and cycle flows in the 'without scheme' scenario, when Keyhole Bridge was open to motor vehicles, and the 'with scheme' scenario, when Keyhole Bridge was closed to motor vehicles, are presented below.

With Scheme

- Pedestrian trips: 632
- Cycling trips: 151

Without Scheme

- Pedestrian trips: 180
- Cycling trips: 67

Difference

- Pedestrian trips: +452
- Cycling trips: +84

4.38 The DfT's AMAT model requires pedestrian and cycling flows to be inputted in a daily format. Therefore, KMC used factors derived from the DfT's pedal cycle traffic distribution table (Table TRA0405) to convert the flows into a daily format (12-hour day). This dataset was used to derive the factors due to the wide range of data available, including flows across all days of the week and months

of the year to eliminate seasonal bias. As there is no national or local publicly available pedestrian dataset that met the same parameters, it was considered robust to use the same dataset as a proxy for pedestrians trips.

4.39 The calculated 12 hour daily flows for the 'with' and 'without' scenarios are set out below:

With Scheme

- Pedestrian trips: 3,350
- Cycling trips: 800

Without Scheme

- Pedestrian trips: 954
- Cycling trips: 355

Difference

- Pedestrian trips: +2,396
- Cycling trips: +445

4.40 Based on the assumption that 954 walking trips and 355 cycling trips represent the baseline (without scheme) daily flows, and 3,350 walking trips and 800 cycling trips represent the 'with intervention' daily flows, the active travel derived scheme benefits derived from AMAT would be **£10,400,417** (based on a 20 year appraisal period).

The Influence of the COVID-19 Pandemic on Walking and Cycling Trips

4.41 It is acknowledged that the data presented above is based on surveys undertaken during the COVID-19 pandemic. We have therefore taken the opportunity to review the influence of the pandemic on walking and cycling trips.

During COVID-19 lockdowns

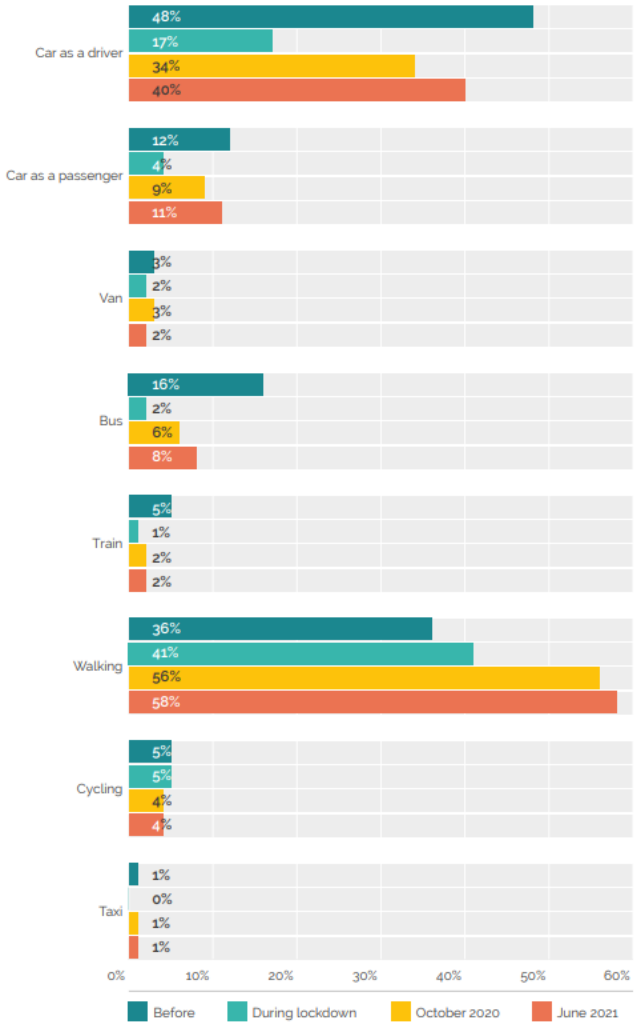
4.42 Research undertaken by Anable et al (2022) has shown that walking is the only mode of travel that people undertook more regularly during the COVID-19 lockdowns (henceforth, lockdowns), than they did in 2019 prior to the COVID-19 pandemic. Please note that regularly is defined as at least three days per week. In comparison, the number of people undertaking regular cycling trips was relatively stable; this being 5% in 2019 and 5% during lockdowns. The number of people driving regularly reduced from 48% in 2019 to 17% during lockdowns.

Post COVID-19 lockdowns

4.43 If 2019 data is compared to June 2021 data, when no lockdowns were in place, the following is observed:

- The number of people driving regularly increased to 40% in June 2021, but this is still lower than 2019 levels.
- The number of people cycling regularly reduced slightly from 5% in 2019 to 4% in June 2021.
- The increase in the number of people walking regularly during lockdown has been sustained. Here, 58% of people walked regularly in June 2021, compared to 36% in 2019.

Figure 4.2: Percentage of people reporting using each mode on at least three days a week



4.44 Reference: Anable, J., Brown, L., Docherty, I. and Marsden, G. 2022. Less is more: Changing travel in a post-pandemic society. Centre for Research into Energy Demand Solutions. Oxford, UK. ISBN: 978-1-913299-15-6

4.45 In light of the evidence presented above, it is considered that the Community Group's walking and cycling counts are appropriate for use in our active travel economic assessment.

Sensitivity Test

4.46 Notwithstanding the above evidence, as a sensitivity test, we have also set out three additional scenarios and compared them with the active mode benefits forecast by BCP Council, which were based on figures from the Weymouth scheme:

- If 75% of the KMC forecast active mode benefits were realised;
- If 50% of the KMC forecast active mode benefits were realised; and,
- If only 20% of the KMC forecast active mode benefits were realised.

4.47 The level of benefits for each of these scenarios is set out in **Table 4.4** below.

Table 4.4: AMAT Derived Active Mode Benefits for the Keyhole Bridge

Active Mode Benefit Scenarios	Forecast Level of Benefit
KMC Derived Active Mode Benefits	£10,400,417
75% KMC Derived Active Mode Benefits	£7,800,313
50% KMC Derived Active Mode Benefits	£5,200,208
20% KMC Derived Active Mode Benefits	£2,080,083
BCP Active Mode Benefits with 55% Growth (derived from Weymouth Scheme)	£2,055,064*
BCP Active Mode Benefits with 20% Growth (derived from Weymouth Scheme)	£931,847*

* Source: BCP Council AMAT output spreadsheets. £931,847 is the figure used by BCPs in their calculations.

Value for Money Assessment

Summary

4.48 On the basis of the analysis conducted, the practical effect of closing Keyhole Bridge to motorised vehicle traffic is seen in the calculated scheme benefits.

4.49 The effect of improving Poole's active travel network provides a strong imperative and policy justification for the promotion of additional movement by sustainable modes of travel.

4.50 The closure of Keyhole Bridge, as a directly assessed active travel intervention, is anticipated to provide net economic benefits of **£10,400,417** over a 20 year appraisal period. The forecast benefits are based on traffic counts provided by the Keyhole Bridge Community Group. Even if only 20% of the benefits are realised this still results in net economic benefits of **£2,080,083.**

4.51 KMC also reviewed and recalculated the congestion disbenefits provided by the Council; these disbenefits were based on a 1-month trial closure of Poole Park Road in 2016. Here, KMC assessed the impact of a 10.6% reduction in traffic flows and journey time delays due to traffic evaporation. A significant research base demonstrates there is a direct correlation between road space reallocation and behaviour change; however, this effect had not been considered by the Council.

4.52 KMC also proposed that a vehicle occupancy rate of 1.14, based on the DfT's 'commuting car journey' rate, should be used instead of the rate of 1.43 for 'general cars', which is used in the Council's economic disbenefit calculations for Parkstone Road.

4.53 The commuting car journey rate is deemed to be more appropriate for Parkstone Road because it is a commuter corridor that serves major employment areas in Poole. As a result, Parkstone Road has a tidal profile of westbound (in the AM peak) and eastbound (in the PM peak) traffic flows. The BCP Council traffic flows are also based on delays that occur between 16:00 and 18:00, which is when the majority of PM commuting journeys occur. Therefore, it is considered more appropriate to base the car occupancy rate on the DfT's 'commuting car journey' occupancy rate of 1.14.

4.54 The application of the 1.14 vehicle occupancy ratio to KMC's recalculation of the Council's disbenefits (with Scenario 2a traffic evaporation reductions applied) equates to an economic disbenefit of £1,865,116 discounted to 2010 prices. KMC has then added the Council's £100,000 scheme cost, which was discounted to 2010 prices within AMAT. The total PVC for the scheme was thus calculated to be **£1,934,469**.

4.55 The division of the scheme benefits against scheme costs (in 2010 prices) gives a benefit to cost ratio (BCR) of 5.4 based on KMC's active travel-related assessment outcomes; this falls into the 'very high' value for money category (BCR greater than 4) in the DfT's Value for Money Framework (VfM)[1].

4.56 **Table 4.5** below provides a summary of the scheme's Present Value of Costs (PVCs), Present Value of Benefits (PVBs) and BCRs under a number of different scenarios.

[1] DfT. Value for Money Assessment: Advice Note for Local Transport Decision Makers.

Table 4.5: Scheme Value for Money Assessment

	Scenario					
Output	*Scenario 2a + KMC AMAT Benefits*	Scenario 2a + 75% of KMC AMAT Benefits	Scenario 2a + 50% of KMC AMAT Benefits	Scenario 2a + 20% of KMC AMAT Benefits	Scenario 2a + BCP AMAT (20% Growth)	Scenario 2a + BCP AMAT (55% Growth)
PVC	£1,934,469	£1,934,469	£1,934,469	£1,934,469	£1,934,469	£1,934,469
PVB	£10,400,417	£7,800,313	£5,200,208	£2,080,083	£931,847	£2,055,064
NPV	£8,465,948	£5,865,844	£3,265,739	£145,614	-£1,002,622	£120,595
BCR	5.4	4.0	2.7	1.1	0.5	1.1
DfT VfM Category	*Very High*	Very High	High	Low	Poor	Low

Source: KMC and BCP Council

4.57 It can be seen from **Table 4.5** that the KMC core scenario (highlighted in blue) would result in a BCR of 5.4, which equates to a very high value for money. Even if only 20% of the KMC derived active mode benefits materialised, which we consider to be overly pessimistic, it would result in a BCR of 1.1 (e.g. the benefits and costs are effectively balanced).

4.58 Furthermore, even if the Council's calculated congestion disbenefits of £3,382,000 were deducted from KMC's calculated active mode benefits, the closure of Keyhole Bridge would still generate a positive net present value (NPV) for the KMC core scenario as well as the 75% and 50% of KMC AMAT benefits as presented in **Table 4.6** below.

Table 4.6: KMC Benefits Applied to BCP Council's Calculated Disbenefits

Output	Scenario 2a + KMC AMAT	Scenario 2a + 75% of KMC AMAT Benefits	Scenario 2a + 50% of KMC AMAT Benefits
PVC	£3,382,000	£3,382,000	£3,382,000
PVB	£10,400,417	£7,800,313	£5,200,208
NPV	£7,018,417	£4,418,313	£1,818,208
BCR	3.1	2.3	1.5
DfT VfM Category	High	High	Medium

4.59 The revised economic analysis set out within this report demonstrates the positive economic impact of closing Keyhole Bridge to motorised vehicle traffic. This economic analysis complements the policy case which clearly demonstrates a strong imperative and policy justification for the reinstatement of the modal filter at Keyhole Bridge.

5 Summary & Conclusions

5.1 This report has been prepared on behalf of the Keyhole Bridge Group to support their written representation in response to the current consultation by BCP Council regarding Keyhole Bridge, Poole. The Council is consulting on three options:

- Option A – leave Whitecliff Road open to all traffic through Keyhole Bridge;
- Option B – re-close Whitecliff Road at Keyhole Bridge to motor vehicles for a further trial period of 6 months using a new ETRO; or
- Option C – permanently close Whitecliff Road at Keyhole Bridge to motor vehicles.

5.2 The re-opening of Keyhole Bridge to traffic is not in line with the Council's own policies, or indeed national policies, which seek to induce a mode shift to sustainable modes and reduce the negative impacts of traffic on walking and cycling journeys. There are also safety concerns of the bridge being open to traffic.

5.3 BCP Council has provided an economic assessment of the closure of the bridge, which is set out in the BCP Council report titled 'Whitecliff Road Data Evidence', January 2022. The report concludes at paragraph 5.6 that "*Based on the data available from 2016, the cost to the economy from delayed traffic was £3.382million over 20 years. Benefits from predicted increased active mode travel were predicted to be £0.923million over 20 years.*"

5.4 It states at paragraph 4.9 that *"Adding the £0.923million benefit to the £-3.382million disbenefit would result in a £2.459million dis-benefit over a 20-year period."*

5.5 This report has reviewed the BCP Council's economic case and inputs and provided an updated assessment based on alternative inputs, which we consider to be more appropriate. The KMC economic assessment has forecast disbenefits to motorists of £1,934,469 over a 20 year period and benefits from increase in active travel of £10,400,417 over a 20 year period, resulting in a net present value (NPV) of **£8,465,948**. Even if only 20% of the forecast increase in active travel materialised, which is considered to be overly pessimistic, it would still result in a positive NPV over a 20 year period.

5.6 The revised economic analysis set out within this report demonstrates the positive economic impact of closing Keyhole Bridge to motorised vehicle traffic. This economic analysis complements the policy case which clearly demonstrates a strong imperative and policy requirement for the reinstatement of the modal filter at Keyhole Bridge.

5.7 The Decision Impact Assessment Report October 2020 classified the overall impact of reopening Keyhole Bridge to traffic as negative. The Portfolio Holder Decision (Post Engagement Final Decision

report the Portfolio Holder) stated that on the basis of the 2016 travel survey, the classifications for climate change and the economy should be green (not amber) and therefore the disbenefits of maintaining the closure of Whitecliff Road outweighed the benefits. Based on the evidence set out in this report, KMC concludes that this in incorrect, and that Keyhole Bridge should be permanently closed to motor vehicles, which is Option C of the Council's consultation